

Allison Creek Construction Season 2014



The newly constructed Allison Creek Power Plant

Photo by Sharon Crisp

In the 2014 April edition of Ruralite, CVEA made members aware of what lie ahead for the Allison Creek Hydroelectric Project and told members it was finally time to take the project from paper to concrete.

This summer, CVEA delivered on that promise, literally, with 1,300 cubic yards of concrete poured between June and October. CVEA met or exceeded every goal for the project during the first construction season, including ground clearing and building of the lower and upper access roads, blasting and building of the tunnel, building of the powerhouse structure, laying the first stretch of the penstock, and installation of the feeder line.

All the concrete, purchased locally, was poured for the foundation of the

powerhouse, the tailrace, and penstock supports. To put things in perspective, an average 1,800 square foot home uses about 30 cubic yards. This means enough concrete for 43 homes was poured for the Allison Creek Project this year.

CVEA built a very challenging construction road that is needed to drive to the future location of the diversion structure at 1,300-foot elevation and along some extremely challenging terrain. The construction road also features a 770 foot long tunnel that was blasted through solid rock. The tunnel is large enough to drive a full size excavator through without dissembling any part of the excavator. In addition to greatly assisting the construction effort, the tunnel is an impor-

tant feature for future maintainability of the project. The upper portion of the construction road was not scheduled for completion until 2015, but the project team was able to complete it in 2014, ahead of schedule.

A 3.8-mile feeder line was built this season to connect the Allison Creek powerhouse to the CVEA system. This required the placement of 130 poles and 16 miles of conductor along challenging terrain with limited accessibility for equipment. The poles had to be airlifted to their individual spots by helicopter, and much of the work required hand digging and physically climbing the poles to complete the line work.

Originally, the penstock was scheduled to be installed during the 2015 construction season, but favorable conditions allowed CVEA to accelerate some of the penstock work to this year. Twelve sections of 40 foot-long penstock were trenched and installed just south of the powerhouse; the penstock is a 36-inch diameter pipe that carries high pressure water from the diversion structure to the powerhouse turbine. This feature of the project will continue next year when over a mile of penstock will be installed.

The tailrace, a channel of water that flows back into the creek after the project has extracted the energy from the water, was also completed this year. The tailrace could only be constructed by diverting Allison Creek around the tailrace location, allowing for concrete to be poured in a dry environment. To achieve this, a coffer dam was put in place. The coffer dam, which has now been removed permanently, was installed under the direct observation of the Alaska Department of Fish and Game to ensure the safety of any fish in the creek. Additionally, CVEA monitored the water quality of the creek daily.



One of the most important accomplishments in 2014 was the construction of the powerhouse building. The powerhouse had to be constructed tall enough to pick up the turbine housing and lift it to its final position.

The building consists of very strong steel beams that are able to withstand the weight of a crane designed to pick up the very heavy turbine and generator. Attached to the beams are insulated, fabricated walls that were engineered specifically for Valdez weather and seismic conditions. The walls and roof are now completely in place and the building is weather tight for the winter.

Throughout the construction season, a two-year manufacturing process of the turbine and generator was being completed. This equipment was assembled in the factory, tested, and placed on a barge to Valdez. The equipment is now stored in Valdez awaiting installation in 2015.

The construction season ended in mid November and will resume in the spring of 2015. Milestones for 2015 will include the completion of the penstock, construction of the diversion structure, and installation of the powerhouse equipment. CVEA is scheduled to begin producing commercial hydropower from the project in 2016 when the creek allows a



Top left, view of the construction site from the mountain above
Top right, crews building the upper access road
Above left, placement of the penstock
Above right, tunnel blasting

Photos courtesy Sharon Crisp and McMillen

full commissioning of the power plant.

CVEA is pleased with the success of the first construction season. For additional project information and up to date photos and videos of construction activities, visit the Allison Creek website at <http://allisoncreekhydro.cveahydro.org>. ■